OMEGA

HH501DK
Digital Thermometer

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INTRODUCTION

This instrument is a portable 3½ digit, compact-sized digital thermometer designed to use external K-type thermocouple as temperature sensor. Temperature indication follows Reference Temperature/Voltage Tables (N.I.S.T. Monograph 175 Revised to ITS-90) for K-type thermocouples.

SAFETY INFORMATION

It is recommended that you read the safety and operation instructions before using the thermometer.

WARNING

To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24V AC or DC.

WARNING

To avoid damage or burns, do not make temperature measurement in microwave ovens.

CAUTION

Repeated sharp flexing can break the thermocouple leads. To prolong lead life, avoid sharp bends in the leads, especially near the connector.

The ⚠ symbol on the instrument indicates that the operator must refer to an explanation in this manual.

SPECIFICATIONS

ELECTRICAL

Temperature Scale: Celsius or Fahrenheit user-selectable

Measurement Range: -50°C to 1300°C, (-58°F to 2000°F)

Resolution: 1°C or 1°F, 0.1°C or 0.1°F

Accuracy: Accuracy is specified for operating temperatures over the range of 18°C to 28°C (64°F to 82°F), for 1 year, not including thermocouple error.

±(0.3% rdg + 1°C) -50°C to 1000°C
±(0.5% rdg + 1°C) 1000°C to 1300°C
±(0.3% rdg + 2°F) -58°F to 2000°F

Temperature Coefficient: 0.1 times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 50°C (32°F to 64°F and 82°F to 122°F).

Input Protection: 24V dc or 24V ac rms maximum input voltage on any combination of input pins.

Reading Rate: 2.5 times per second.

Input Connector: Accepts standard miniature thermocouple connectors (flat blades spaced 7.9mm, center to center).

ENVIRONMENTAL

Ambient Operating Ranges: 0°C to 50°C (32°F to 122°F) <80% R.H.
Storage Temperature: -20°C to 60°C (-4°F to 140°F) <70% R.H.

GENERAL

Display: 3½ digit liquid crystal display (LCD) with maximum reading of 1999.
Battery: Standard 9V battery.
Battery Life: 200 hours typical with carbon zinc battery.
Dimensions: 192mm(H) x 91mm(W) x 52.5mm(D).
Weight: 365g.

OPERATING INSTRUCTIONS

Selecting the Temperature Scale

Readings are displayed in either degrees Celsius(°C) or degrees Fahrenheit(°F). To change the temperature scale, press the "°C" or "°F"key.

Selecting the Display Resolution

The thermometer allows two choices of resolution:

High resolution: 0.1°C or 0.1°F

Low resolution: 1.0°C or 1.0°F

To select the alternate display resolution, press the corresponding "0.1°/1°" key.

HOLD Mode

Press " HOLD" button to toggle in and out of Hold mode, In the Hold mode, the " H " annunciator is displayed. (The Hold mode may be exited when changing function.)

☼ Display Back-Light

Pressing the "☼" key to toggle turn on or turn off the Back-Light.

MAX Mode

Pressing the Max key to enter the MAX mode. The thermometer then records and updates the maximum absolute values and the MAX annunciator appears on the display. Pressing the MAX key again to exit the MAX recording mode. In the MAX mode, press HOLD key to stop the recording, press HOLD again to resume recording.

T1,T2,T3,T4, T1-T2,T1-T3,T1-T4 Temperature Measurement

1. The function switch indicates which input is selected for display; T1 thermocouple, T2 thermocouple,T3 thermocoupleor, T4 thermocouple or the difference between the two thermocouples (T1-T2, T1-T3, T1-T4).
2. Connect a type k thermocouple to the jack on the instrument. Place the probe or thermocouple tip on or in the material to be measured and take the temperature reading directly from the display.

MAINTENANCE

WARNING

To avoid possible electrical shock, disconnect the thermocouple connectors from the thermometer before removing the cover.

Battery Replacement

Power is supplied by a 9 volt "transistor" battery. (NEDA 1604, IEC 6F22). The "🔋" appears on the LCD display when replacement is needed. To replace the battery, remove the two screws from the back of the meter and lift off the battery cover. Remove the battery from battery contacts.

HH501DK CALIBRATION PROCEDURE

Note: The following calibration procedure should perform only by qualified technicians who have access to the items as following.

Equipment: The class of calibrator had better 10 times greater than the measured meter.

Temperature Calibration

Insert the K type thermocouple to the female connector, and the other side of this probe to Temperature Calibrator and connect output to the voltage meter. We must allow the K type to stabilize for at least 1 minute and make sure “+” and “-“ polarity is right position.

1. Set the range to the T1/0.1°C, and then apply 0°C to T1 input (T2 input open) adjust R3 and R4 (fine adj.) until LCD reading reads 0.0±0.1°C.

2. Set the range to the T2/0.1°C, and then Apply 0°C to T2 input (T1 input open) adjust R1 and R2 (fine adj.) until LCD reading reads 0.0±0.1°C.

3. Set the range to the T1/0.1°F, and then apply 0°F to T1 input (T2 input open) adjust R6 until LCD reading reads 0.0±0.1°F.

4. Set the range to the T1/0.1°F, and then apply 165°F to T1 input (T2 input open) adjust R7 until LCD reading reads 165.0±0.1°F.

5. Set the range to the T1/1°F, and then apply 1832°F to T1 input (T2 input open) adjust R5 until LCD reading reads 1832±1°F.

6. Set the range to the T1/1°C, and then apply 1000°C to T1 input (T2 input open) adjust R8 until LCD reading reads 1000±0°C.

WARRANTY / DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 **months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED.
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair.
2. Model and serial number of product , and
3. Repair instructions and/or specific problems relative to the product.

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